AWIPS System Administration Note 10 (for Electronics Systems Analysts)
Site Support Team
APO3: MLG

SUBJECT   **:** LDAD Backup and Restore Procedures

PURPOSE   **:** To provide a method to recover and restore LDAD in the event of a
                        failure.

SECURITY LEVEL : root

A.   LDAD BACKUP PROCEDURE

The HP D-270 LS has a primary and secondary disk. The first image tape will contain VG 00
Disk 2, Primary Hard Drive and the second image will contain VG 01 Disk 1 Secondary Hard
drive.

Prerequisites:

-The LS must be up and fully operational.

-Obtain the current HP-UX support CD for HP 9000 series 700/ 800. (the CM # is 1362 and HP
P.N. is B6191-10020 for support disk.)

-Use the system console and Xyplex port for performing the procedures. (To connect to the
LDAD server, set the terminal configuration to **Serial(1)/Serial(2)** and use **c lts1-xxx:5800**.)
Note: xxx=Site Id

1.   Hardware Setup:
        a) Insert Support Release CD
        b) Insert a non-write protected DAT tape into the LS tape drive (120m).
        c) Connect to the LS by way of the system console and login as root.
        d) Perform a re-boot of the LS by executing   **shutdown -r now**
        e) When following appears, interrupt the boot-up process by depressing any key.

```
Firmware Version   38.40

Duplex Console IO Dependent Code (IODC) revision 0

------------------------------------------------------------------------------
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------------------------------------------------------------------------------

   Processor    Speed              State            Coprocessor State  Cache Size
   ---------   --------   --------------------   -----------------  ----------
      0        160 MHz    Active                 Functional           512 KB

  Central Bus Speed (in MHz)  :        120

  Model: D270/1
```

```
   Available memory (bytes)    :  268435456
   Good memory required (bytes):   32862208

   Primary boot path:      8/12.5    (dec)
   Alternate boot path:    8/16/5.0    (dec)
   Console path:           8/16/4.0    (dec)
   Keyboard path:          8/16/7.0    (dec)

CPU 0
WARNING:  Memory has been initialized, but not tested as a result of
          FASTBOOT being enabled.  To test memory, use the FASTBOOT
          command in the CONFIGURATION menu and reboot the system.


Processor is booting from first available device.

To discontinue, press any key within 10 seconds.

        Press any key and the following should appear

Boot terminated.

------- Main Menu ------------------------------------------------------------

      Command                          Description
      -------                          -----------
      BOot [PRI|ALT|<path>]            Boot from specified path
      PAth [PRI|ALT|CON|KEY] [<path>]  Display or modify a path
      SEArch [DIsplay|IPL] [<path>]    Search for boot devices

      COnfiguration [<command>]        Access Configuration menu/commands
      INformation [<command>]          Access Information menu/commands
      SERvice [<command>]              Access Service menu/commands

      DIsplay                          Redisplay the current menu
      HElp [<menu>|<command>]          Display help for menu or command
      RESET                            Restart the system
-------
Main Menu: Enter command >
      At the > prompt enter SEA


Main Menu: Enter command >SEA (The following should appear)


Searching for potential boot device(s)...
This may take several minutes.

To discontinue search, press any key (termination may not be immediate).


      Path Number        Device Path (dec)       Device Type
      -----------        -----------------       -----------
      P0                 8/12.12                 Random access media
      P1                 8/12.5                  Random access media
      P2                 8/16/5.2                Random access media
      P3                 8/16/5.0                Sequential access media
      P4                 8/16/6.0                LAN Module
```

```
Main Menu: Enter command >
```

2. Boot to Support CD

a) At the >' prompt enter **bo p2** (Boot from the CDrom)

```
Main Menu: Enter command > bo p2
```

b) At the 'interact with IPL (Y or N)?>' prompt enter **y**

interact with IPL (Y or N)?>y (the following should appear:)

```
  Booting...
     Boot IO Dependent Code (IODC) revision 1


     HARD Booted.

     ISL Revision A.00.38  OCT 26, 1994

   ISL>
```

c) At the 'ISL' prompt enter **ode**

```
   ISL> ode
```

d) At the 'ODE>' prompt enter **copyutil**

```
   ODE> copyutil
```
(the following should appear:)

```
Please wait while I scan the device busses...

Ty Indx Path              Product ID                       Bus    Size   Rev
-- ---- --------------- ------------------------------ ------ ------ ----
T  0    8/16/5.0.0      HPC1533A/C1530B tape Drive        SCSI     N/A AN04
D  1    8/12.12.0       SEAGATEST34573WC                  SCSI  3.9 GB HP05
D  2    8/12.5.0        SEAGATEST34573WC                  SCSI  3.9 GB HP05

Legend:
Ty  = Device type. 'D' for Disk; 'T' for Tape.
Indx = Index number used for referencing the device.
Rev  = Firmware Revision of the device.
Size = Size of the Disk drive or "N/A" for a Tape drive.

Note:  Due to different calculation methods used, the size
    of the device shown is only a rough approximation.

COPYUTIL>
```

3. **Perform Image Creation**

a) At the 'copyutil' prompt enter **backup**

COPYUTIL> backup

b) At the 'Enter the Disk Index' prompt enter **2** for primary disk (8/12.5.0) VG 00
enter **1** for secondary disk (8/12.12.0) VG 01
c) At the 'Enter the Tape Index' prompt enter **0** for external tape drive (8/16/5.0).

d) Use Data compression (**[y]/n/q/?):** enter **n**   (Note, Both drives in the LS are 4 GB and compression will not be needed. You should see the following:)

```
**********************************************************************
```
* Please Load into Tape Drive, Tape Volume 0 for Backup.
```
**********************************************************************
```
If you have to, you may safely remove the SUPPORT MEDIA now.

Ready to continue ([y]/n/q/?):

c) At 'ready to continue' prompt enter **y**.

Ready to continue ([y]/n/q/?): y   (The following should appear:)

```
Checking for the beginning of tape:  DONE.
..........10% completed
..........20% completed
..........30% completed
..........40% completed
..........50% completed
..........60% completed
..........70% completed
..........80% completed
..........90% completed
..........100% completed
End of Backup

Please wait while I rewind the tape
----------------------------------
```
NOTE, if more than one tape is needed for image, copyutil will prompt you for another tape

FINISHED

Appx Time for image backup VG 00 Disk 2 on LS: 2 hours 20 minutes
Appx Time for image backup VG 01 Disk 1 on LS: varies 20 minutes to 2hours 20 minutes

NOTE: Repeat steps 3 to Finished to create an Image of Disk 1 VG 01

4) Turn power off when the 'COPYUTIL>' prompt appears. Disk images of a good LS have been made! Cycle the power on the LS and reboot.

After creating both images Label and store the tapes, This process should be repeated after every major software revision 4.2.2 to 4.2.3 or about once every three months. In addition to this process an incremental back-up configured using sam for the following directories as a minimum should be performed at least weekly, or as often as dictated by local changes.
/etc
/home
/ldad
/var/adm
/var/spool

This concludes the LDAD backup procedure.

B.   RESTORE PROCEDURES FOR LS HP D-270

The D-270has a primary and secondary disk. Your stored primary disk tape should contain VG 00 Disk 2, and the secondary disk tape should contain VG 01 Disk 1.

Prerequisites:

These procedures may be used at any time to return your system to a known functional state. If a particular disk or Volume Group has been corrupted or the drive has been replaced this process will return the system to the state it was in when the image was made.

You Must Determine which disk and volume group needs to be restored. If the bootable disk was replaced or needs to be rebuilt use your disk 2 image tape, if the system boots but the second drive was replaced or needs rebuilt use your disk 1 image tape.   Following is a typical directory structure by Volume group for the LS.

VG 00 Disk 2 Contains Typically

/dev/vg00/lvol3	102400	42858	55884	43% /
/dev/vg00/lvol1	47829	17520	25526	41% /stand
/dev/vg00/lvol6	307200	65359	226751	22% /var
/dev/vg00/lvol5	512000	295829	202684	59% /usr
/dev/vg00/lvol7	307200	32950	257117	11% /usr/local
/dev/vg00/lvol8	409600	161171	232911	41% /opt
/dev/vg00/lvol9	122880	4463	111034	4% /ldad
/dev/vg00/lvol4	99669	10	89692	0% /tmp

VG 01 Disk 1 Contains Typically

/dev/vg01/lvol4	102400	1133	94946	1% /data/Incoming
/dev/vg01/lvol5	102400	12020	84824	12% /home
/dev/vg01/lvol3	204800	1159	190920	1% /data/logs
/dev/vg01/lvol2	2560000	1962	2398190	0% /data/ldad

-Obtain the current HP-UX support CD for HP 9000 series 700/ 800. (the CM # is 1362 and HP P.N. is B6191-10020 for support disk.)

-Use the system console and Xyplex port for performing the procedures. (To connect to the LDAD server, set the terminal configuration to **Serial(1)/Serial(2)** and use **c lts1-xxx:5800**.)
Note: xxx=Site Id

1. Hardware Setup:

   a) Insert Support Release CD
   b) Insert the required DAT image tape into the LS tape drive
   c) Connect to the LS by way of the system console.
   d) Perform a re-boot or power up of the LS.
   e) When following appears, interrupt the boot-up process by depressing any key.

```
Firmware Version  38.40

Duplex Console IO Dependent Code (IODC) revision 0

--------------------------------------------------------------------------
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  Processor    Speed          State          Coprocessor State  Cache Size
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  Console path:           8/16/4.0  (dec)
  Keyboard path:          8/16/7.0  (dec)

CPU 0
WARNING:  Memory has been initialized, but not tested as a result of
          FASTBOOT being enabled.  To test memory, use the FASTBOOT
          command in the CONFIGURATION menu and reboot the system.

Processor is booting from first available device.

To discontinue, press any key within 10 seconds.

     Press any key and the following should appear

Boot terminated.

------- Main Menu ------------------------------------------------------------

      Command                           Description
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```
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        DIsplay                          Redisplay the current menu
        HElp [<menu>|<command>]          Display help for menu or command
        RESET                            Restart the system
-------
Main Menu: Enter command >
```
     At the > prompt enter **SEA**

Main Menu: Enter command >SEA (The following should appear)

```
Searching for potential boot device(s)...
This may take several minutes.

To discontinue search, press any key (termination may not be immediate).


    Path Number          Device Path (dec)      Device Type
    -----------          -----------------      -----------
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    P1                   8/12.5                 Random access media
    P2                   8/16/5.2               Random access media
    P3                   8/16/5.0               Sequential access media
    P4                   8/16/6.0               LAN Module


Main Menu: Enter command >

Main Menu: Enter command >
```

2. **Boot to Support CD**

    a) At the >' prompt enter **bo p2** (Boot from the CDrom)

Main Menu: Enter command > bo p2

   b) At the 'interact with IPL (Y or N)?>' prompt enter **y**

interact with IPL (Y or N)?> y   (the following should appear:)

```
  Booting...
     Boot IO Dependent Code (IODC) revision 1


     HARD Booted.

     ISL Revision A.00.38  OCT 26, 1994

   ISL>
```

   c) At the 'ISL' prompt enter **ode**

ISL> ode

d) At the 'ODE>' prompt enter **copyutil**

ODE> copyutil   (the following should appear:)

```
Please wait while I scan the device busses...

Ty Indx Path            Product ID                        Bus    Size   Rev
-- ---- -------------- -------------------------------- ------ ------ ----
T  0    8/16/5.0.0     HPC1533A/C1530B tape Drive        SCSI     N/A AN04
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Legend:
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Indx = Index number used for referencing the device.
Rev  = Firmware Revision of the device.
Size = Size of the Disk drive or "N/A" for a Tape drive.

Note:  Due to different calculation methods used, the size
   of the device shown is only a rough approximation.

COPYUTIL>
```

3. <u>Perform LS Disk Restore from Image</u>

a) At the 'copyutil' prompt enter **Restore**

COPYUTIL> Restore

b) At the 'Enter the Disk Index' prompt enter **2** for primary disk (8/12.5.0) VG 00

Or enter **1** for secondary disk (8/12.12.0) VG 01

c) At the 'Enter the Tape Index' prompt enter **0** for external tape drive (8/16/5.0).

(Note, you should see the following:)
****
** Please Load into Tape Drive, Tape Volume 0 for Backup.**
****
If you have to, you may safely remove the SUPPORT MEDIA now.

Ready to continue ([y]/n/q/?):

c) At 'ready to continue' prompt enter **y**.

Ready to continue ([y]/n/q/?): y   (The following should appear:)

Checking for the beginning of tape: DONE.
..........10% completed
..........20% completed
..........30% completed
..........40% completed
..........50% completed
..........60% completed
..........70% completed
..........80% completed

..........90% completed
..........100% completed
End of Backup

Please wait while I rewind the tape

NOTE, if more than one tape is needed for Restore, copyutil will prompt you for another tape

Restore Time for VG 00 Disk 2 Primary Drive on LS: 2 hours
Restore Time for VG 01 Disk 1 Secondary Drive on LS: varies 20 minutes to 2hours

NOTE: Repeat steps 3 to here to Restore both disks

4) When the 'COPYUTIL>' prompt appears. Restore is complete and you may cycle the power and reboot the systen!

Finished:

After restoring remove your protected images and store the tapes, This process should provide a fully functional LS equivalent to the last image backup you made. Contact the NCF if you have difficulties. In addition to this process a selective restore may be needed and performed from your incremental back-ups using SAM.